

A Serpent's Tale: the Milky Way

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ABSTRACT

Before light pollution robbed us of its celestial glow, the Milky Way was the backbone of the night and became part of ancient people's myths and beliefs based on their perception of it as a serpent. In North America, whether as a giant form on the ground or pictured on a rock, the snake has a story to tell of the road for souls, one which goes back well over 4000 years and can be found in caves, on hilltops or as a pathway for the living to traverse, all reflections of the serpent stretching overhead.

It was during an all night drive to the Black Hills in South Dakota a number of years ago, in the practically unpolluted light sky conditions, that I was once again reacquainted with the splendor of the Milky Way. Under the dark skies of the western Plains I watched as the wonderful phosphorescent glow of the Milky Way, stretching overhead all the way down to the horizon, slowly faded about forty-five minutes before sunrise. The experience was one of those magical moments that cannot be forgotten. It reinforced (for me at least) why ancient people, including the Native Americans, were captivated by the Milky Way inventing myths and legends to explain its origin and seasonal movements as it slowly rotated overhead in the night sky with its bright southern end swinging along the horizon to the west.

It was shortly after my own experience that an envelope arrived in the mail which I opened while my good friend and mentor Dr. Jack Heil, the (now retired) physics and astronomy professor at the University of Wisconsin - Fond du Lac campus, was visiting. As I opened the envelope he glimpsed an illustration from the enclosed article and asked, "Is that a map of the Milky Way?" The illustration was in fact, a map of a 628 feet (191.4 meters) long, prehistoric stone serpent petroform, i.e. a geometric or effigy form outlined with rocks or small boulders used for ritual purpose (Steinbring 1970, Bender 2007:1), stretching from east to west/northwest along the summit of a hill in rural Kentucky (Sanders 1991). I answered "Yes, it is, in a sense" and explained why I had requested the article. At the time I had recently finished working on the Strawberry Island project (Bender 2009) and had become more than thoroughly acquainted with the Chippewa Indian word *Jibekana* which was related to both the serpent or snake and the Milky Way, a primary reason I had requested the stone serpent paper. As the research continued, more rock art pictograph and petroglyph examples depicting an open-mouth serpent were found which, although not near the scale of the giant stone serpent, shared key elements in design and orientation. Thus was born the Serpent's Tale, a paper examining the blending of ancient Native American traditions of the serpent portrayed in rock art and the Milky Way as a path for newly departed souls.

The Milky Way

The Milky Way is classified as a spiral-arm, pinwheel-shaped galaxy which contains all the stars visible to the naked eye including our own star, the Sun (Figure 1). Seen from Earth the Milky Way is a faintly luminous belt of stars located along a narrow band of the night sky's celestial sphere in the plane of our Galaxy. However, under dark sky conditions, the norm before the invention of electric lighting, the southern part of the Milky near Sagittarius was said to be so bright it could cast shadows (Figure 1).¹

The Milky Way measures between 90,000 to 100,000 light years in diameter (Abel 1984:308, Darling 2004:340, Sparrow et al 2014:222) and 1500 to 2300 light years thick (Darling 2004:340, O'Byrne 1999:24). The Sun is located approximately 27,000 to 30,000 light years from the center of the Milky Way galaxy (Abel 1984:307-308, Darling 2004:340, O'Byrne 1999:24, Sparrow et al 2014:222) in the Orion arm of the galaxy between the (inner) Sagittarius arm and (outer) Perseus arm (Figure 2).

There are an estimated 200 billion stars in the galaxy (Burnham 2000:78, Darling 2004:340, Moore 1992:150). Of that total, approximately 2000 are visible to us here on earth if or when viewed under dark sky conditions (Bender 2011:7). All the stars visible from earth are located in a small area composed of the Orion arm, the Perseus arm and the Sagittarius arm of the Milky Way (Abel 1984:310; Asimov 1988:7&18-19; Burnham 2000:79; Darling 2004:340).

People living in the mid and northern latitudes in ancient times observed that both the shape and orientation of the Milky Way changed from season to season as the path of light slowly rotated overhead. So they did what people have always done when living under the stars at night; they invented myths and stories to explain the origin and purpose of the phosphorescent patch of light that divided the heavens above (Asimov 1990, Cornelius 1997:116-117, Sesti 1991:385-389). In North America, things were no different. The Native American people also invented and shared stories about the Milky Way, its origin and, as they saw it, its shape and purpose in their traditions and universe.

Eastern Woodland and Plains Indian Traditions - The Milky Way and the Open-Mouth Serpent

When they migrated west from the Woodlands to the grasslands of the Great Plains, 'the people' as most Native American groups called themselves, did what others have done during their migrations or journey of nations; they took their beliefs and traditions with them. The people were either proto-Algonquin or proto-Siouan speaking people who, living close to each other for generations, developed a similar lifestyle and common culture despite the differing language core (Bender 2004: 14; Hewes 1948; Powers 1977:18; Waldman 1985: 39-40, 67-68). Because of this, many ancient traditions, beliefs and ceremonies practiced on the northern Plains retained ties to their earlier origins in the east (Powell 1969:26; Schiesler 1987:50-51; Taylor & Sturtevant 1996:36-139).

To the tribal groups who inhabited the eastern Woodlands and Great Plains, the Milky Way was seen as a ghost road, "the path followed by spirits" (Wedel 1977:133). Moreover, it was seen by many tribes as a bridge stretching across the night sky toward the west (sometimes southwest or northwest) along which the souls of the recently deceased (and shamans in full consciousness) travelled on their way to paradise (Goodman 1992:222-223&38, Hadingham 1984:94, Krupp 1991:272-273, Langford 2007:201-224, Russel 1980:46-47, Schwartz 1997:93-96). As the Ojibwa, a Siouan language group said, (Chamberlain 1981:224):

*... the prairie is dark, but across the sky is a trail of light.
It is the ghost pathway of the departed warriors."*

1 <https://www.space.com/7270-areat-week-milky.html>

The Otoe were not alone. Their linguistic cousins, the Lakota (Sioux) also viewed the Milky Way as “the road of spirits”, in their language *Wanagi Ta Canku*, the road that the *Wanagi*, i.e. their soul or ghost travels to *Wanagi Yata* or “the place of spirits” located somewhere in the southwestern sky world (Goodman 1992:21-23, Powers 1977:53&93) and thought to be at the end of the Milky Way (Figure 1). To the Cheyenne, an Algonquin—speaking tribe, the soul is known as the *tasoom*. After death when the *tasoom* departs the body, it travels to the home of *Heammawibio* (the Creator) by way of the Milky Way known to the Cheyenne people as *ekutsihimmiyo*, the Hanging Road which is suspended from Heaven and Earth (Hoebel 1960:86). In the east, the Iroquoian-speaking Hurons (Wyandot) belief was that departed spirits pursued their journey to the land of souls along the Milky Way while the souls of dogs took another route by certain constellations known as the “Way of the Dogs” (Parkman 1983:395).

It was, however, not only a trail of light and ghost path for some tribes, but was also seen as a serpent and known as the serpent path, an idea that was shared by other cultures. The *Crooked Serpent* of the Bible (Book of Job, 26:13) may well have been the same as the Akkadian ‘Great Serpent’, the northern Hindu *Nagavithi* (meaning “Path of the Snake”) and the Viking or Norse *Midgardhsormr* or *Jormungand*, usually called the *Midgard Serpent*, all indicating Milky Way in form or shape with an association as a ghost or spirit path (Allen 1963:474-477, Asimov 1990:16&22, Sesti 1897:387). The tradition of the Milky Way as a serpent was especially prevalent in the upper and western Great Lakes areas of the United States where the Algonquin-speaking Anishinaabe (composed of the Chippewa, Potawatomi and Ottawa tribes) lived. Like the people who migrated or were pushed west to the Great Plains, they brought their traditions and beliefs with them following their migration from the northeast (Bender 2009). The idea that the recently departed spirits must cross a stream bridged by a giant serpent on their journey to the afterlife was one of them (Spence 1994:129).

At Lac du Flambeau, a Chippewa settlement established in 1745 in northern Wisconsin, the Bear River inlet mirrored one of those traditions. Father Chrysostom (Adrain) Verwyst, a resident Jesuit priest who lived there in the late 19th century, described it as a “deep, rapid stream ...” which, according to Chippewa beliefs, acted as a physical barrier to the souls travelling the “Ghost road” after death when on their way to the cemetery (representing paradise) located on the inlet’s western shore (Heming 1896:135). The Anishinaabe, or “original people” as the Ojibway referred to themselves, called this stretch of the soul’s journey to the afterlife (and inlet) the *Jibekana* meaning “the path of the dead” or “the path of souls”. Furthermore, it has its counterpart in the night sky.

The word *Jibekana* can also directly translate as “the serpent’s path” and/or “the Milky Way” (Joe Chosa, Ojibway language teacher personal communication). A further remark by Fr. Verwyst expressed this when he said that the soul travelling (west) to paradise must cross the “... stream over which lies the much dreaded *Ko-go-gaup-ogun*, or rolling and sinking bridge ... [which], once looking back it assumes the shape of a huge serpent swimming, twisting and untwisting its folds across the stream” (Heming 1896:135). The correlation of the bridge or Milky Way with a serpent is evident, and it is pictured with a serpent-like shape and described as such in the Ojibway map of the afterlife (Figure 3).

Furthermore, the Midé or Grand Medicine Lodge (Bender 2009) ‘Ghost scrolls’ offer additional insights. Two of the Midé ‘Ghost scrolls’ picture a circular ‘village of the dead’ on the (west) end of the ‘path of the dead’. One illustration shows a slightly northeast/southwest oriented ‘Ghost Midewagun’ (medicine lodge) while the second scroll shows the ‘Ghost Midewagun’ with a west/northwest-east/southeast orientation (Dewdney 1975:103&105). Both the northeast/southwest and west/northwest-east/southeast orientations seen in the ‘Ghost Midewagun’ scrolls are almost certainly veiled indications of the seasonal movement of the Milky Way as it rotates from a northeast/southwest orientation in the late Spring to a west/northwest-east/southeast one in late Autumn. In the late Summer to late Fall, when the Cygnus or Great Rift in the Milky Way lays on the western horizon (Darling 2004:17), its Y-shape is seen as the head of the open-mouth

serpent with its serpentine body and tail stretching back to the east (Figure 4).

Like many Native American traditions, this conceptual view of the Milky Way is not new. Ancient rock art images and petroform, one dating back thousands of years, portray an open-mouth snake stretched across the sky. Three examples will be discussed in detail, all interpreted as representing the Milky Way. In addition, the painting of an 'orb' or circle form will be included helping to 'round out' the discussion.

The Serpent and Shaman Pictograph

The oldest known image of an open-mouth serpent depicts a stick-like figure or shaman walking up the back of the serpent from its tail toward the open mouth with the Sun prominently pictured below the serpent which is stretched along the zenith of the sky above it (Figure 5). The rock it is engraved on was discovered at the Titicut site in Bridgewater, Massachusetts sometime between 1946 and 1951 and labelled feature number 179. According to Lenik (2002: 134-135), Feature number 179 consisted of a fire hearth described as a circular ring of large pebbles with a flat stone base that contained lumps of charcoal and some calcined bone fragments. Beneath the base stone of the hearth was another flat stone lying horizontally and forming a cover over three elongated flat stones that were placed on edge at right angles to each other to form a box or cist. In the cist, the excavators found a full-grooved ax, a clumsy plummet, and a white quartz scraper, all covered with red ochre. The underside of the cover stone contained three incised figures and was covered by a thin layer of graphite (Figure 5). The contents of the box or cist suggested that the feature dated to the Late Archaic period [ca. 2000 - 1000 B.C.], and that the white quartz artefact was an engraving tool that was used in producing the incised figures."

The site has been attributed to the ancient Maritime Archaic culture or 'Red Paint People', a maritime adapted people and culture dating Ca. 5000 - 1000 B.C. (Fitzhugh 1978, Tuck 1976). Along with other temporal, proto-Algonquian linguistic groups (Schiesier 1982:130-131,152,162; Steinbring 1970:62,247; Steinbring et al 2003:112), the Maritime Archaic shared trade and a linguistic connection (Maxwell 1978:31, Ritchie 1969:79-83) for transmitting traditions and other cultural 'crossties' across the northeastern North American continent ranging from the Great Lakes area east to New England and lower Canada including Labrador (Ritchie 1969:79-83, Tuck 1976).

The glyph inscribed on the underside of the cist box cover was clearly meant to represent the sky overhead or universe. The red ochre sprinkled over long gone ashes of the human remains and offerings for the afterlife that were found on the bottom of the cist which likely represented the earth. The original orientation of the serpent in the glyph (Figure 5) was likely with the tail to the east and the open-mouth of the serpent to the west, the same orientation as the Milky Way in the night sky from late Summer through early Winter when Cygnus and the Great Rift are seen curving downward on the western horizon (Figure 4). The stick-like figure is the soul of the departed or a shaman in full consciousness walking up the 'serpent' or 'soul' path tail (in the eastern sky) to begin the journey west to the afterlife (Dewdney 1975:107, 1860:Kohl 215-219), an ancient belief corroborated in 1610 by Father Joseph Jouveny, a Jesuit priest in New France who wrote (Ashton & Whyte 2001:148): "They believe that appointed place for souls, to which after death they are to retire, is in the direction of the setting sun ..."

Remarkably, an Algonquin Midé bark scroll made well over 4000 years after the Maritime Archaic Petroglyph (Figure 5) depicts an almost identical scene with a shaman acting as soul walking up a sky arch from the east to the zenith (Figure 6).

The persistence of the ancient belief can be attributed to the lasting impact of an oral tradition spanning something on the order of two hundred generations transmitted by the proto-Algonquin language core which, like the beliefs, had spread across half of the North American continent persisting for millennia.

The Sinuous Serpent with an Open Mouth

Two very similar representations of the serpent in both shape and orientation are the Boyd County, Kentucky serpent petroform (Figure 7) and a pictograph recorded at Cave in Rock in southern Illinois (Figure 8). Both forms depict a snake with a sinuous or undulating body and an open mouth, the head facing the direction west. Furthermore, they are also likely coeval in age dating to the Mississippian period or Middle to Late Woodland at approximately 800 to 1200 years old (Caldwell 1959:33, Maxwell 1959:57, Salzer 1987:281-284, Sanders 1991:277&278).

As previously mentioned, the Boyd County snake is a 628 feet (191.4 meters) long, prehistoric, sinuous-shaped stone serpent petroform stretching from east to west/northwest along the summit of a hill in rural Kentucky (Sanders 1991).

The Boyd County serpent petroform was constructed of sandstone cobbles deliberately placed on the hill summit to create the shape (Sanders 1991:273). Like most petroform, extensive shovel testing and excavation produced absolutely no datable artifacts (Bender 2007:2, Sanders 1991:274-276, Steinbring 1970:238). There were, however, other problems with the investigation and report because of a total lack of understanding the form she was investigating labelling it “an archaeological enigma [and] puzzle ...” (Sanders 1991:276). This led to confusing the tail with the head of the serpent. As she wrote (Sanders 1991:273), “[there is the] ... slightest hint of a coil ... in the bulged outline of the head” and (Sanders 1991:277) “[the] ... well-defined serpent outline [had a] strikingly *bi-furcated tail*, and associated stone ring which may represent an egg.” Because there is no such thing as a “bi-furcated tail” snake, the petroform is, in fact, an open-mouth (rattle) snake with its head, i.e. the “bifurcated tail” to the west and the tail (with rattles) the “bulged outline of the head” on the east side of the hill. Furthermore, the “stone ring ...” on the east side of the hill is the last appendage on the rattle of the tail which is always the smallest section, the connecting part of the rest of the tail obviously disturbed by the construction of a radio tower access road (Sanders 1991:275). The site was likely carefully chosen, the hill acting as a mirror of the curved vault or dome of the sky, and the stone serpent on its crest a reflection the Milky Way directly overhead when it stretches from east to west, its open mouth a represented by the two branches of the Cygnus rift in the Milky Way in the west (Figure 4).

In shape and orientation, the Boyd County serpent directly compares to the rock art scene painted in Cave in Rock, Illinois on the Ohio River (now destroyed) which is an almost identical serpent with an open mouth and sinuous or undulating body (Figure 8).

The site was described with an accompanying illustration by William Pidgeon (1858:243), a self-described “antiquarian” who published an account of his extensive travels in the upper Midwest of the United States supposedly accompanied by a Winnebago Indian Chief named De-coo-dah. Although many of Pidgeon’s ideas (and mound maps) were flawed due to personal and prevailing beliefs of the time, he did record some indisputable facts, one of them the scenes encountered at Cave in Rock which were certainly not a figment of his rich imagination (Birmingham & Eisenberg 2000:24-27). The cave was known to the French, appearing as Cavern dans le Roc on French map printed in 1774. However, the details of the map were obtained from an earlier report written by M. de Lery, a French engineer who had visited the cave in 1729. The anglicized name, “Cave in a rock” was included on a map accompanying a report published in London in 1775 (Myer 1971:75-76). The cave was again visited in 1836 by Lewis Collins (1877:147) who wrote: “It is about 200 feet long and 80 feet wide, its entrance 80 feet wide at the base, and 25 feet high ... the interior smooth walls ... Close scrutiny of the walls made it evident that the ancient inhabitants of a remote period had used the cave as council house. Upon the walls were many hieroglyphics, well executed - among them, representations of at least eight different animals ...” A further comment of three of the animals “resembling an elephant, the tails and tusks excepted” were corroborated by Pidgeon (1858:265) who, over two decades later, illustrated at least one

or two of them (Figure 8) noting that another was “on the opposite wall.”

It is, however, the serpent and accompanying images pictured in Pidgeon’s Cut W (Figure 8) that are of interest. As Pidgeon (1858:262&265) described them, “Some of these are depicted in Cut W, where will be observed the figure of the sun, cut in the rock, and paintings of the moon in various phases, and stages of increase and declension; the serpent, in the form of an orb, or as swallowing its tail; the viper, with distended jaws the double headed serpent and the seven stars.” Like the Boyd County serpent which was virtually unknown to Pigeon or most everyone until 1971 (Sanders 1988:273), the undulating or serpentine body of the snake with an open mouth pictured in the cave mirrors the Milky Way turn-for-turn when it is aligned east-west with its head to the west (Figure 7). The sun and moon at various phases were also represented as well as “seven stars” (Pidgeon 1858:223). Anyone with a rudimentary knowledge of naked-eye astronomy and the night sky would immediately recognize the “seven stars” as the Pleiades, correctly placed next to the serpent’s tail in the east when compared to a star map of the night sky showing the Pleiades and Milky Way in late autumn (Figure 4).²

The serpent in the form of an ‘orb’ serpent on the cave’s wall picturing a snake as a circle with its open mouth meeting its tail (Figure 8) is eerily reminiscent of *Jormungand* or the Midgard Serpent in Norse mythology, sometimes named the *Midgardsorm* (Fell 1980:35) “who lies about all lands and whose length scarcely suffices for his tail and head to meet round the earth.” In the complex Norse cosmology, Midgard or the ‘home in the middle’ was the domain of humans, located midway between Asgard, the home of the gods and Utgard, ‘the outer place’ or rim of the disc world of untamed chaos (Ferguson 2009:23). There was always a cosmic dimension attached to the Midgard Serpent (Odin) cast into the sea that lay between Midgard and Utgard, the serpent growing so large it kept the world bound together by biting its own tail (Ferguson 2009:23, Grant 1990:70). In Norse skaldic poetry, the Midgard Serpent is an archetype referred to in riddling diction as ‘the belt of the world’, but in cosmological terms meant as an actual girdle or belt keeping the world, i.e. Midgard or the ‘middle earth’ (which occupied a central cosmic position) bound together (Feil 1980:4 1, O’Donoghue 2010:3 7).

The tradition of the world serpent encompasses many other cultures as does what the ancient Greeks called the *Galaxias kukios* or the “milky circle” (Allen 1963:474-477), the symbolic cosmic connection of the cycles of nature with the phases of the Milky Way as its changes shape in the night sky over the course of a year. Over the course of the year, the Milky Way actually does have a phase in the early spring where it encircles the horizon in a 360° arc. The constellation Cygnus is seen rising in the eastern sky and, to the ancients, along with the other segments of the Milky Way visible along the horizon, would appear as the serpent swallowing its tail stretching around the entire 360° panorama (Figure 9). Therefore, the image of the “serpent, in the form of an orb, or as if swallowing its tail” may also be an artistic representation of the “milky circle” girdling the round earth, i.e. the Milky Way.

Another Giant Snake in the Grass

Without doubt, the Ohio Serpent mound at over 1300 feet (396 meters) long is not only the longest

2 If the figures in Cut W (Figure 8) were drawn accurately enough to represent the actual cave images, we may be looking at the positions of the sun, moon, Milky Way and Pleiades during and after the Autumnal equinox ca. 1000 AD. After sunset the serpent, i.e. the Milky Way, would have been aligned east to west at the zenith with its head to the west and later in the evening, rotating to the northwest (values calculated from *SkyMap Pro Version 8*, (<http://skymap-pro-software.informer.com/l8.0/>). Furthermore, the relative position of the “seven stars”, i.e. the Pleiades, is correctly rendered in relationship to the serpent’s curves or undulations in the eastern sky (Figure 4). The sun and phases of the moon pictured are interesting in that if portrayed in Cut W as actually seen, they also show the east-west rise and set azimuths which closely match those of both the sun and moon at the time of the equinox when the sun’s rise and set azimuths begin to shift south while the moon’s rise and set azimuths gradually shift north until the winter solstice when the directions reverse. The Milky Way also shifts orientation and is not seen as the East-West serpent for another six months, but when it is, before dawn instead of after sunset.

serpent mound (Glotzhober & Lepper 1994), but probably the most famous giant serpent or snake construction known (Figure 10).

Although it is not known to be or have meant to have been related to the Milky Way when constructed, its astronomical properties bear mentioning because they exhibit the astronomical knowledge and construction skills of its builders in their ability to design, build and align parts of the serpent to key events in the sky (Figure 11), a testament to their observational abilities.

First thought to be constructed by the Adena culture approximately 2000 years ago (Fletcher & Cameron 1988:55, Sarceni 2008), excavations and work in 1996 suggested that it is no more than a thousand years old (Sarceni 2008) making it contemporary or coeval in age with the proposed dates for the Boyd County serpent petroform and Cave in Rock pictographs. However, more recent dating and studies once more suggest that it was constructed by the Adena ca. 300 BC (Hermann 2014). Although more work is needed to clarify the actual date of construction, it remains the largest documented ancient effigy mound still surviving in the world (Fletcher & Cameron 2008:59) and obviously built with a cosmological purpose.

Summary

Astronomical affiliation with serpent pictographs or petroforms is not a new idea, yet it is a subject rarely if ever mentioned or discussed in the archaeological literature. The same can be said for the Woodland and Plains Indians traditions of the Ghost Road or Path and how ancient those beliefs are. However, anyone with an elementary background in astronomy would recognize that the pictograph of an open-mouth serpent rendered at Cave in Rock and the Boyd County serpent petroform were or are renditions of the Milky Way, recognizable to those with the experience and knowledge gained by watching the changing shape of the Milky Way over the course of the seasons as it rotates overhead in the night sky. Hopefully this article will open some eyes to what else may lay in the grass or be encountered in a cave, an idea not unfamiliar to the people who lived with nature under the dark skies of the past.

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Pictures



Figure 1. The bright, southern end of the Milky Way and constellation of Sagittarius at bottom right. The two branches of the Milky Way and Cygnus Rift are visible near the top center, the rift a dark lane separating the two branches of the Milky Way.



Figure 2. An artistic representation of the spiral-arm Milky Way galaxy. Note the Sagittarius, Orion, Perseus and Cygnus arms and location of our own Sun.

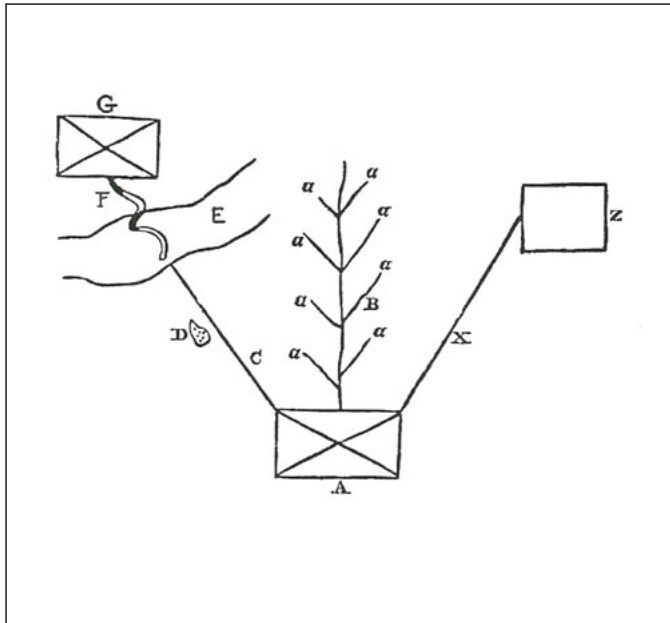


Figure 3. A map of the Ojibway "afterlife" and road to paradise drawn for J. G. Kohl in the mid-19th century. Explanation is as follows: A is the (created) earth upon which "God has planted his !aw, like a tree (B) straight upwards" indicating the direction north. "When men die, they all go, after death, along the path of souls (C). On the center of this path (at D) thou seest the strawberry lying on one side. It is extraordinarily large..." After a "journey of from three to four days...a large broad river (E) bars the way. Over it there is no regular bridge. Something that looks like a great tree-stump (F) lies across it...In reality, it is a great serpent, which has its tail on the opposite shore, and thrusts forth its head to this side. On this head the souls are obliged to leap". The Great Spirit grieved for men and "ordered Menaboju to prepare a paradise (G). ..in the west", or "the direction of the setting sun" according to the Midé Ghost Scrolls. They... had also [added] a paradise [for Christians] (X and Z) which is in the east (Kohl 1860:215-219).

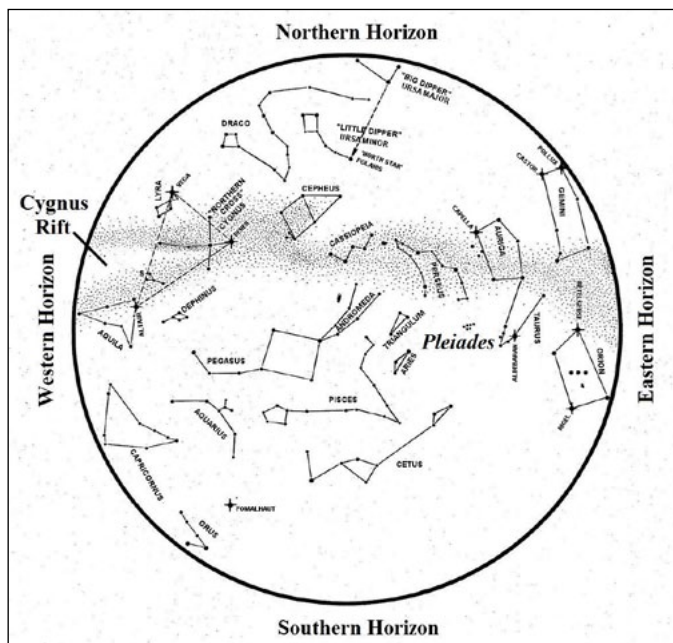


Figure 4. The sinuous Milky Way aligned east-west in late Fall with the constellation Cygnus and Cygnus Rift on the western horizon. The Y-shape of the Cygnus Rift creates the head and open-mouth of the serpent with its body winding back to the tail (and Pleiades) in the east. Note that the tail in the east is somewhat wider than the rest of the body. Please note that the standard star map to be used overhead has been reversed for the sake of convention.

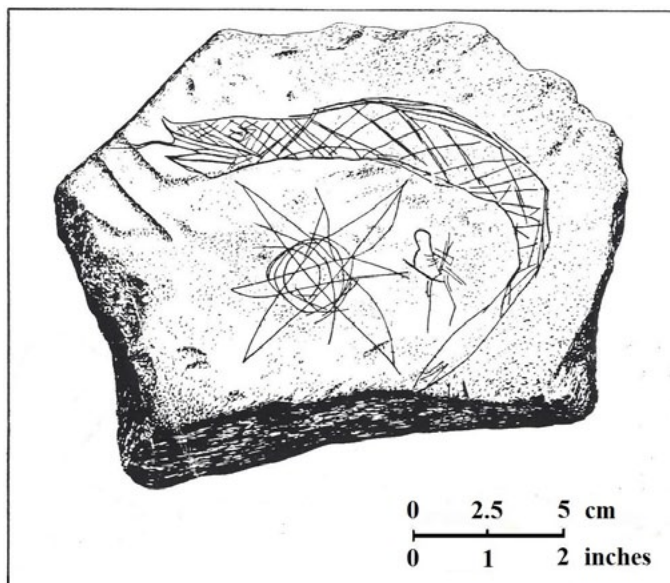


Figure 5. Figure 8: Line drawing (with scale) of an engraved rock with a shaman walking up the back of an open-mouth serpent or snake whose body stretches across the zenith of the sky above the sun (Russel, 1980:70).



Figure 6. Algonquin birch bark scroll depicting a shaman or soul walking up the sky arch from the east to the zenith from Hadingham (1984:94). See Figure 5 for comparison.

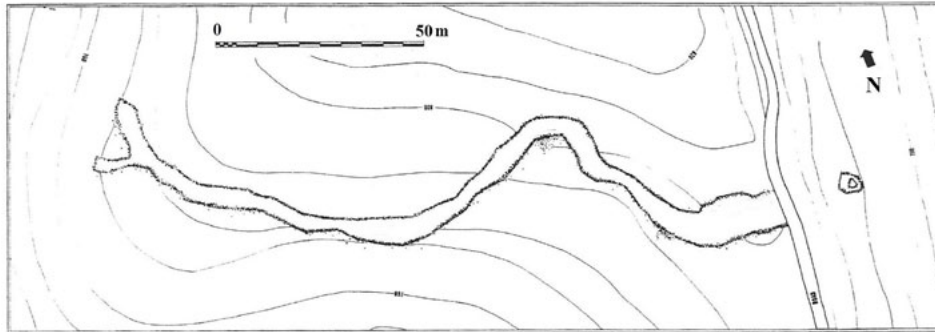


Figure 7. The 628 feet long Boyd County serpent petroform with its head and open mouth to the west and (wider) tail to the east, a reflection of the Milky Way in the Fall and early Winter (see Figure 4).

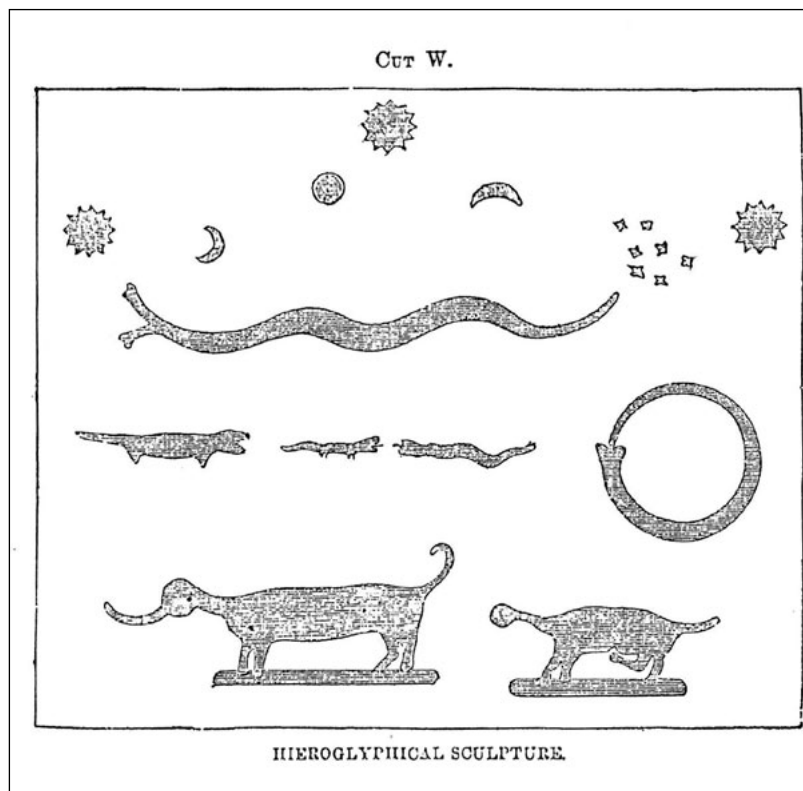


Figure 8. Cut W of Hieroglyphical Sculpture from Pidgeon (1858:243) showing the open-mouth serpent with a sinuous body, the sun, moon and 'seven stars', a serpent in the form of an "orb" swallowing its tail and various reptiles and animals. The animal pictured at bottom right is likely a possum.

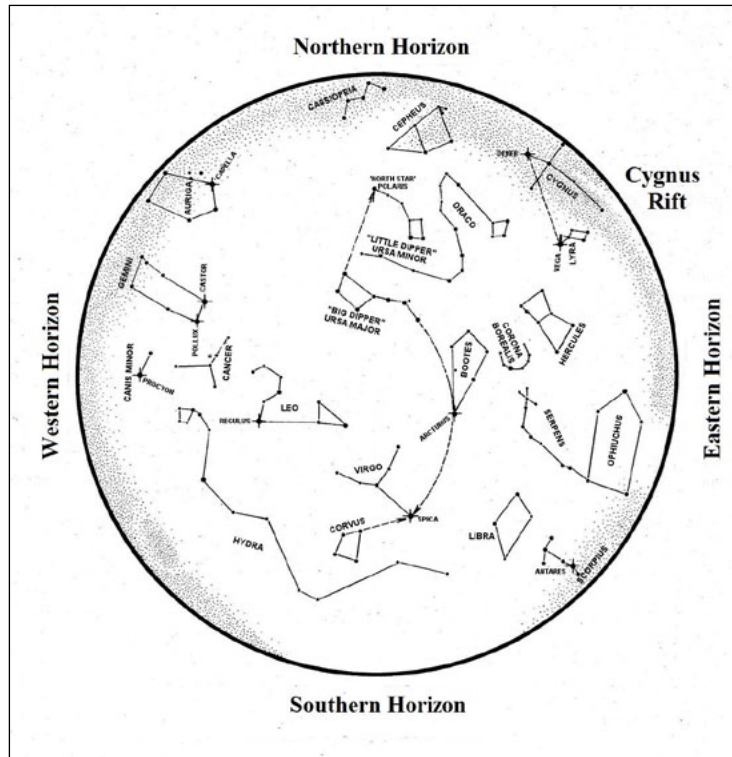


Figure 9. The Milky Way in late Spring when it forms a ring low on the horizon and the 'ends' appear to meet at the Cygnus Rift forming a shape of a snake swallowing its own tail (see Figure 8). Please note that the standard star map to be used overhead has been reversed for the sake of convention.

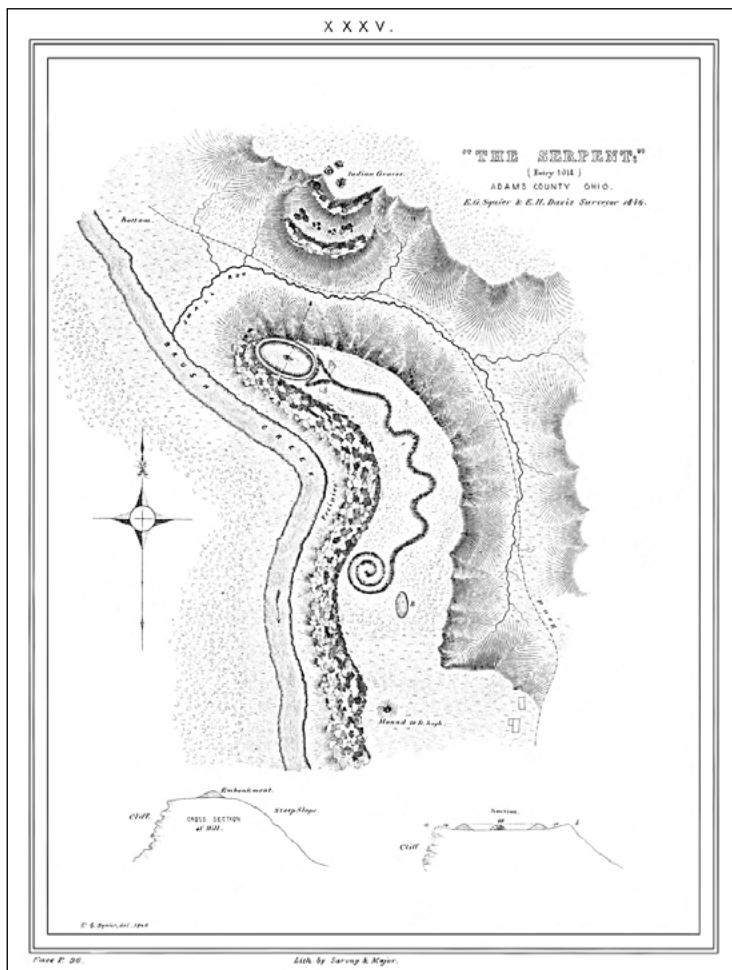


Figure 10. The Serpent Mound in Adams County, Ohio. From E. G. Squire and E. H. Davis, *Ancient Monuments of the Mississippi Valley*, published in 1848 by the Smithsonian Institution, Washington, D.C., Plate 35.

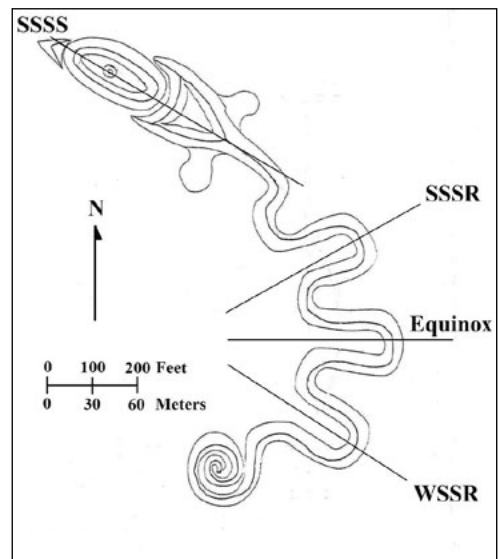


Figure 11. Map of the Ohio Serpent Mound showing the observed astronomical alignments after Fletcher & Cameron (1988). Note that SSSS = Summer Solstice Sunset, SSSR = Summer Solstice Sunrise, WSSR = Winter Solstice Sunrise.